

**We claim:**

1. A method for identifying a compound that inhibits senescence-associated changes in cellular gene expression in a mammalian cell, the method comprising the steps of:

- (a) treating the mammalian cell in the presence and absence of the compound with an agent that induces senescence or culturing the mammalian cell under conditions that induce senescence;
- (b) assaying the mammalian cell for repression or induction of a cellular gene that is repressed or induced by p21 gene expression; and
- (c) identifying the compound as an inhibitor of senescence-associated changes in cellular gene expression if the gene that is repressed by p21 is repressed to lesser extent, or the gene that is induced by p21 is induced to a lesser extent, in the presence of the compound than in the absence of the compound.

2. The method of claim 1, wherein the mammalian cell is assayed for a cellular gene that is induced by p21.

3. The method of claim 2, wherein the gene is Fibronectin 1 (Acc. No. X02761), Plasminogen activator inhibitor, type I (Acc. No. M14083), Plasminogen activator, tissue type (Acc. No. M15518), Laminin  $\beta$ 2 (Acc. No. X79683), Desmocollin 2a/bb (Acc. No. X56807), Podocalyxin-like protein (Acc. No. U97519), Activin A (inhibin  $\beta$ A) (Acc. No. J03634), Galectin 3 (Mac-2) (Acc. No. AB006780), Mac-2 binding protein (Acc. No. L13210), Prosaposin (Acc. No. J03077), CTGF (connective tissue growth factor) (Acc. No. M92934), Granulin/epithelin (Acc. No. AF055008), Cathepsin B (Acc. No. L04288), Tissue transglutaminase (Acc. No. M55153), P37NB (slit homolog) (Acc. No. U32907), Serum amyloid A protein precursor (Acc. No. M26152), Alzheimer's disease amyloid A4 protein precursor (Acc. No. D87675), Complement C3 precursor (Acc. No. K02765), Testican (Acc. No. X73608), Integrin  $\beta$ 3 (Acc. No. M35999), N-acetylgalactosamine-6-sulfate sulfatase (Acc. No.

U06088), Acid alpha-glucosidase (Acc. No. X55079), Acid lipase A (cholesterol esterase) (Acc. No. X76488), Lysosomal pepstatin-insensitive protease (CLN2) (Acc. No. AF017456), Superoxide dismutase 2 (Acc. No. X07834), Metaxin (Acc. No. J03060), 2,4-dienoyl-CoA reductase (Acc. No. U78302), Ubiquitin-conjugating enzyme (UbcH8) (Acc. No. AF031141), Ubiquitin-specific protease 8 (Acc. No. D29956), RTP/Cap43/Drgl/Ndrl (Inducible by nickel, retinoids, homocysteine and ER stress) (Acc. No. D87953), C-193 muscle ankyrin-repeat nuclear protein (cytokine-inducible) (Acc. No. X83703), LRP major vault protein associated with multidrug resistance (Acc. No. X79882),  $\beta$ -arrestin related HHCPA78 homolog (upregulated by vitamin D3) (Acc. No. S73591), R-RAS (Acc. No. M14949), RAB 13 small GTPase (Acc. No. X75593), P66 SHC (ski oncogene) (Acc. No. U73377), MK-STYX (MAP kinase phosphatase-like protein) (Acc. No. N75168), H73 nuclear antigen/MA-3 apoptosis-related/TIS (topoisomerase-inhibitor suppressed) (Acc. No. U96628), Natural killer cells protein 4 (Acc. No. M59807), TXK tyrosine kinase (T-cell specific) (Acc. No. L27071), X-linked PEST-containing transporter (Acc. No. U05321), AMP deaminase 2 (Acc. No. M91029), FIP2/HYPL huntingtin-interacting protein (Acc. No. AF061034), DNASE I homolog (Acc. No. X90392), Transcription factor 11 (Acc. No. X77366), Histone H2A.2 (Acc. No. L19779), Histone H2B (Acc. No. AL021807), 23808 (Acc. No. AF038192), CGI-147 (Acc. No. AA307912), EST (Acc. No. W89120), EST (Acc. No. AI026140), EST (Acc. No. AA218982), or EST (Acc. No. W63684).

4. The method of claim 1, wherein the mammalian cell is assayed for a cellular gene that is repressed by p21.

5. The method of claim 4, wherein the gene is CDC2 (Acc. No. X05360), CKsHs1 (CDC2 kinase) (Acc. No. X54941), PLK1 (polo-like kinase) (Acc. No. U01038), XCAP-H condensin homolog (Acc. No. D38553), CENP-A (centromere protein A) (Acc. No. U14518), CENP-F (centromere protein F) (Acc. No. U30872), MAD2 (Acc. No. U65410), BUBR1 (Acc. No. AF053306), MCAK (mitotic centromere-associated kinesin) (Acc. No. U63743), HSET kinesin-like protein (Acc. No. AL021366), CHL1 helicase (Acc. No. U75968), AIK-1 (aurora/IPL1 -related kinase) (Acc. No.

D84212), AIM-1 (AIK-2; aurora/IPL1-related kinase) (Acc. No. AF004022), PRC1 (protein regulating cytokinesis 1) (Acc. No. AF044588), Citron kinase (Acc. No. H10809), Lamin B1 (Acc. No. L37747), Lamin B2 (Acc. No. M94362), LAP-2 (lamin-associated protein 2) (Acc. No. U18271), MPP2 (M phase phosphoprotein 2) (Acc. No. U74612), MPP5 (M phase phosphoprotein 5) (Acc. No. X98261), Thymidine kinase 1 (Acc. No. K02581), Thymidylate synthase (Acc. No. X02308), Uridine phosphorylase (Acc. No. X90858), Ribonucleotide reductase M1 (Acc. No. X59543), Ribonucleotide reductase M2 (Acc. No. X59618), CDC47 homolog (MCM7) (Acc. No. D55716), CDC21 homolog (MCM4) (Acc. No. X74794), CDC45 homolog (Porc-PI) (Acc. No. AJ223728), HsORC1 (origin recognition complex 1) (Acc. No. U40152), DNA polymerase  $\alpha$  (Acc. No. X06745), Replication factor C (37-kD subunit) (Acc. No. M87339), B-MYB (Acc. No. X13293), HPV16 E1 protein binding protein (Acc. No. U96131), Topoisomerase II $\alpha$  (Acc. No. J04088), Chromatin assembly factor-I (p60 subunit) (Acc. No. U20980), High-mobility group chromosomal protein 2 (Acc. No. X62534), High-mobility group chromosomal protein 1 (Acc. No. D63874), Histone H2A.F/Z variant (Acc. No. AA203494), XRCC9 (Acc. No. U70310), RAD54 homolog (Acc. No. X97795), HEX1 5'-3'exonuclease (RAD2 homolog) (Acc. No. AF042282), ATP-dependent DNA ligase I (Acc. No. M36067), RAD21 homolog (Acc. No. D38551), Putative transcription factor CA150 (Acc. No. AF017789), Transcriptional coactivator ALY (Acc. No. AF047002), WHSC1/MMSET (SET domain protein) (Acc. No. AA401245), NN8-4AG (SET domain protein) (Acc. No. U50383), EZH2 (enhancer of zeste homolog 2) (Acc. No. U61145), PTB-associated splicing factor (Acc. No. X70944), AU-rich element RNA-binding protein AUF1 (Acc. No. U02019), U-snRNP-associated cyclophilin (Acc. No. AF016371), 3-phosphoglycerate dehydrogenase (Acc. No. AF006043), L-type amino acid transporter, subunit LAT1 (Acc. No. M80244), Hyaluronan-mediated motility receptor (Acc. No. U29343), Phorbolin I (PKC-inducible) (Acc. No. U03891), PSD-95 binding family protein (Acc. No. D13633), HTRIP (TNF receptor component) (Acc. No. U77845), NAD-dependent methylenetetrahydrofolate dehydrogenase (Acc. No. X16396), Membrane glycoprotein 4F2 antigen heavy chain (Acc. No. J02939), Mucin-like protein (Acc. No. 079992), MAC30 (differentially expressed in meningiomas) (Acc. No. L19183), P52rIPK (regulator of interferon-induced

protein kinase) (Acc. No. AF007393), Putative phosphoserine aminotransferase (Acc. No. AA192483), Glucose 6-phosphate translocase (Acc. No. Y15409), Calcyclin binding protein (Acc. No. AF057356), Ornithine decarboxylase 1 (Acc. No. X16277), Trophinin assisting protein (tastin) (Acc. No. U04810), Acyl-coenzyme A cholesterol acyltransferase (Acc. No. L21934), Pinin/SDK3 (Acc. No. Y10351), EST (Acc. No. AA975298), EST (Acc. No. AA034414), EST (Acc. No. AA482549), Cyclin A1 (Acc. No. U66838), Cyclin B1 (Acc. No. M25753), CDC25A (Acc. No. NM\_001789), Dihydrofolate reductase (Acc. No. J00140), or ING1 (Acc. No. NM\_005537).

6. The method of claim 1, wherein expression of the cellular gene is detected using an immunological reagent.

7. The method of claim 1, wherein expression of the cellular gene is detected by assaying for an activity of the cellular gene product.

8. The method of claim 1, where expression of the cellular gene is detected by hybridization to a complementary nucleic acid.

9. A method for identifying a compound that promotes senescence-associated changes in cellular gene expression in a mammalian cell, the method comprising the steps of:

- (d) treating the mammalian cell with an agent that induces senescence or culturing the mammalian cell under conditions that induce senescence in the presence and absence of the compound;
- (e) assaying the mammalian cell for repression or induction of a cellular gene that is repressed or induced by p21 gene expression; and
- (f) identifying a compound that promotes senescence-associated changes in cellular gene expression if a gene that is repressed by p21 is repressed in the presence of the compound, or a gene that is induced by p21 is induced in the presence of the compound.

10. The method of claim 9, wherein the mammalian cell is assayed for a cellular gene that is induced by p21.

11. The method of claim 10, wherein the gene is Fibronectin 1 (Acc. No. X02761), Plasminogen activator inhibitor, type I (Acc. No. M14083), Plasminogen activator, tissue type (Acc. No. M15518), Laminin  $\beta$ 2 (Acc. No. X79683), Desmocollin 2a/bb (Acc. No. X56807), Podocalyxin-like protein (Acc. No. U97519), Activin A (inhibin  $\beta$ A) (Acc. No. J03634), Galectin 3 (Mac-2) (Acc. No. AB006780), Mac-2 binding protein (Acc. No. L13210), Prosaposin (Acc. No. J03077), CTGF (connective tissue growth factor) (Acc. No. M92934), Granulin/epithelin (Acc. No. AF055008), Cathepsin B (Acc. No. L04288), Tissue transglutaminase (Acc. No. M55153), P37NB (slit homolog) (Acc. No. U32907), Serum amyloid A protein precursor (Acc. No. M26152), Alzheimer's disease amyloid A4 protein precursor (Acc. No. D87675), Complement C3 precursor (Acc. No. K02765), Testican (Acc. No. X73608), Integrin  $\beta$ 3 (Acc. No. M35999), N-acetylgalactosamine-6-sulfate sulfatase (Acc. No. U06088), Acid  $\alpha$ -glucosidase (Acc. No. X55079), Acid lipase A (cholesterol esterase) (Acc. No. X76488), Lysosomal pepstatin-insensitive protease (CLN2) (Acc. No. AF017456), Superoxide dismutase 2 (Acc. No. X07834), Metaxin (Acc. No. J03060), 2,4-dienoyl-CoA reductase (Acc. No. U78302), Ubiquitin-conjugating enzyme (UbcH8) (Acc. No. AF031141), Ubiquitin-specific protease 8 (Acc. No. D29956), RTP/Cap43/Drgl/Ndr1 (Inducible by nickel, retinoids, homocysteine and ER stress) (Acc. No. D87953), C-193 muscle ankyrin-repeat nuclear protein (cytokine-inducible) (Acc. No. X83703), LRP major vault protein associated with multidrug resistance (Acc. No. X79882),  $\beta$ -arrestin related HHCPA78 homolog (upregulated by vitamin D3) (Acc. No. S73591), R-RAS (Acc. No. M14949), RAB 13 small GTPase (Acc. No. X75593), P66 SHC (ski oncogene) (Acc. No. U73377), MK-STYX (MAP kinase phosphatase-like protein) (Acc. No. N75168), H73 nuclear antigen/MA-3 apoptosis-related/TIS (topoisomerase-inhibitor suppressed) (Acc. No. U96628), Natural killer cells protein 4 (Acc. No. M59807), TXK tyrosine kinase (T-cell specific) (Acc. No. L27071), X-linked PEST-containing transporter (Acc. No. U05321), AMP deaminase 2 (Acc. No. M91029), FIP2/HYPL huntingtin-interacting protein (Acc. No. AF061034), DNASE I homolog

(Acc. No. X90392), Transcription factor 11 (Acc. No. X77366), Histone H2A.2 (Acc. No. L19779), Histone H2B (Acc. No. AL021807), 23808 (Acc. No. AF038192), CGI-147 (Acc. No. AA307912), EST (Acc. No. W89120), EST (Acc. No. AI026140), EST (Acc. No. AA218982), or EST (Acc. No. W63684).

12. The method of claim 9, wherein the mammalian cell is assayed for a cellular gene that is repressed by p21.

13. The method of claim 12, wherein the gene is CDC2 (Acc. No. X05360), CKsHs1 (CDC2 kinase) (Acc. No. X54941), PLK1 (polo-like kinase) (Acc. No. U01038), XCAP-H condensin homolog (Acc. No. D38553), CENP-A (centromere protein A) (Acc. No. U14518), CENP-F (centromere protein F) (Acc. No. U30872), MAD2 (Acc. No. U65410), BUBR1 (Acc. No. AF053306), MCAK (mitotic centromere-associated kinesin) (Acc. No. U63743), HSET kinesin-like protein (Acc. No. AL021366), CHL1 helicase (Acc. No. U75968), AIK-1 (aurora/IPL1-related kinase) (Acc. No. D84212), AIM-1 (AIK-2; aurora/IPL1-related kinase) (Acc. No. AF004022), PRC1 (protein regulating cytokinesis 1) (Acc. No. AF044588), Citron kinase (Acc. No. H10809), Lamin B1 (Acc. No. L37747), Lamin B2 (Acc. No. M94362), LAP-2 (lamin-associated protein 2) (Acc. No. U18271), MPP2 (M phase phosphoprotein 2) (Acc. No. U74612), MPP5 (M phase phosphoprotein 5) (Acc. No. X98261), Thymidine kinase 1 (Acc. No. K02581), Thymidylate synthase (Acc. No. X02308), Uridine phosphorylase (Acc. No. X90858), Ribonucleotide reductase M1 (Acc. No. X59543), Ribonucleotide reductase M2 (Acc. No. X59618), CDC47 homolog (MCM7) (Acc. No. D55716), CDC21 homolog (MCM4) (Acc. No. X74794), CDC45 homolog (Porc-PI) (Acc. No. AJ223728), HsORC1 (origin recognition complex 1) (Acc. No. U40152), DNA polymerase  $\alpha$  (Acc. No. X06745), Replication factor C (37-kD subunit) (Acc. No. M87339), B-MYB (Acc. No. X13293), HPV16 E1 protein binding protein (Acc. No. U96131), Topoisomerase II $\alpha$  (Acc. No. J04088), Chromatin assembly factor-I (p60 subunit) (Acc. No. U20980), High-mobility group chromosomal protein 2 (Acc. No. X62534), High-mobility group chromosomal protein 1 (Acc. No. D63874), Histone H2A.F/Z variant (Acc. No. AA203494), XRCC9 (Acc. No. U70310), RAD54 homolog

(Acc. No. X97795), HEX1 5'-3'exonuclease (RAD2 homolog) (Acc. No. AF042282), ATP-dependent DNA ligase I (Acc. No. M36067), RAD21 homolog (Acc. No. D38551), Putative transcription factor CA150 (Acc. No. AF017789), Transcriptional coactivator ALY (Acc. No. AF047002), WHSC1/MMSET (SET domain protein) (Acc. No. AA401245), NN8-4AG (SET domain protein) (Acc. No. U50383), EZH2 (enhancer of zeste homolog 2) (Acc. No. U61145), PTB-associated splicing factor (Acc. No. X70944), AU-rich element RNA-binding protein AUF1 (Acc. No. U02019), U-snRNP-associated cyclophilin (Acc. No. AF016371), 3-phosphoglycerate dehydrogenase (Acc. No. AF006043), L-type amino acid transporter, subunit LAT1 (Acc. No. M80244), Hyaluronan-mediated motility receptor (Acc. No. U29343), Phorbolin I (PKC-inducible) (Acc. No. U03891), PSD-95 binding family protein (Acc. No. D13633), HTRIP (TNF receptor component) (Acc. No. U77845), NAD-dependent methylenetetrahydrofolate dehydrogenase (Acc. No. X16396), Membrane glycoprotein 4F2 antigen heavy chain (Acc. No. J02939), Mucin-like protein (Acc. No. 079992), MAC30 (differentially expressed in meningiomas) (Acc. No. L19183), P52rIPK (regulator of interferon-induced protein kinase) (Acc. No. AF007393), Putative phosphoserine aminotransferase (Acc. No. AA192483), Glucose 6-phosphate translocase (Acc. No. Y15409), Calcyclin binding protein (Acc. No. AF057356), Ornithine decarboxylase 1 (Acc. No. X16277), Trophinin assisting protein (tastin) (Acc. No. U04810), Acyl-coenzyme A cholesterol acyltransferase (Acc. No. L21934), Pinin/SDK3 (Acc. No. Y10351), EST (Acc. No. AA975298), EST (Acc. No. AA034414), EST (Acc. No. AA482549), Cyclin A1 (Acc. No. U66838), Cyclin B1 (Acc. No. M25753), CDC25A (Acc. No. NM\_001789), Dihydrofolate reductase (Acc. No. J00140), or ING1 (Acc. No. NM\_005537).

14. The method of claim 9, wherein expression of the cellular gene is detected using an immunological reagent.

15. The method of claim 9, wherein expression of the cellular gene is detected by assaying for an activity of the cellular gene product.

16. The method of claim 9, where expression of the cellular gene is detected by hybridization to a complementary nucleic acid.

17. A method for identifying a compound that induces senescence-associated changes in cellular gene expression in a mammalian cell, the method comprising the steps of:

- (a) assaying a mammalian cell in the presence and absence of the compound for expression of a gene whose expression is modulated by p21; and
- (b) identifying a compound that induces senescence-associated changes in cellular gene expression if expression of a gene that is repressed by p21 is repressed in the cell, or expression of a gene that is induced by p21 is increased in the cell, to a greater extent in the presence than in the absence of the compound.

18. The method of claim 17, wherein the mammalian cell is assayed for a cellular gene that is induced by p21.

19. The method of claim 18, wherein the gene is Fibronectin 1 (Acc. No. X02761), Plasminogen activator inhibitor, type I (Acc. No. M14083), Plasminogen activator, tissue type (Acc. No. M15518), Laminin  $\beta$ 2 (Acc. No. X79683), Desmocollin 2a/bb (Acc. No. X56807), Podocalyxin-like protein (Acc. No. U97519), Activin A (inhibin  $\beta$ A) (Acc. No. J03634), Galectin 3 (Mac-2) (Acc. No. AB006780), Mac-2 binding protein (Acc. No. L13210), Prosaposin (Acc. No. J03077), CTGF (connective tissue growth factor) (Acc. No. M92934), Granulin/epithelin (Acc. No. AF055008), Cathepsin B (Acc. No. L04288), Tissue transglutaminase (Acc. No. M55153), P37NB (slit homolog) (Acc. No. U32907), Serum amyloid A protein precursor (Acc. No. M26152), Alzheimer's disease amyloid A4 protein precursor (Acc. No. D87675), Complement C3 precursor (Acc. No. K02765), Testican (Acc. No. X73608), Integrin  $\beta$ 3 (Acc. No. M35999), N-acetylgalactosamine-6-sulfate sulfatase (Acc. No. U06088), Acid alpha-glucosidase (Acc. No. X55079), Acid lipase A (cholesterol esterase) (Acc. No. X76488), Lysosomal pepstatin-insensitive protease (CLN2) (Acc. No.

AF017456), Superoxide dismutase 2 (Acc. No. X07834), Metaxin (Acc. No. J03060), 2,4-dienoyl-CoA reductase (Acc. No. U78302), Ubiquitin-conjugating enzyme (UbcH8) (Acc. No. AF031141), Ubiquitin-specific protease 8 (Acc. No. D29956), RTP/Cap43/Drgl/Ndrl (Inducible by nickel, retinoids, homocysteine and ER stress) (Acc. No. D87953), C-193 muscle ankyrin-repeat nuclear protein (cytokine-inducible) (Acc. No. X83703), LRP major vault protein associated with multidrug resistance (Acc. No. X79882),  $\beta$ -arrestin related HHCPA78 homolog (upregulated by vitamin D3) (Acc. No. S73591), R-RAS (Acc. No. M14949), RAB 13 small GTPase (Acc. No. X75593), P66 SHC (ski oncogene) (Acc. No. U73377), MK-STYX (MAP kinase phosphatase-like protein) (Acc. No. N75168), H73 nuclear antigen/MA-3 apoptosis-related/TIS (topoisomerase-inhibitor suppressed) (Acc. No. U96628), Natural killer cells protein 4 (Acc. No. M59807), TXK tyrosine kinase (T-cell specific) (Acc. No. L27071), X-linked PEST-containing transporter (Acc. No. U05321), AMP deaminase 2 (Acc. No. M91029), FIP2/HYPL huntingtin-interacting protein (Acc. No. AF061034), DNASE I homolog (Acc. No. X90392), Transcription factor 11 (Acc. No. X77366), Histone H2A.2 (Acc. No. L19779), Histone H2B (Acc. No. AL021807), 23808 (Acc. No. AF038192), CGI-147 (Acc. No. AA307912), EST (Acc. No. W89120), EST (Acc. No. AI026140), EST (Acc. No. AA218982), or EST (Acc. No. W63684).

20. The method of claim 17, wherein the mammalian cell is assayed for a cellular gene that is repressed by p21.

21. The method of claim 20, wherein the gene is CDC2 (Acc. No. X05360), CKsHs1 (CDC2 kinase) (Acc. No. X54941), PLK1 (polo-like kinase) (Acc. No. U01038), XCAP-H condensin homolog (Acc. No. D38553), CENP-A (centromere protein A) (Acc. No. U14518), CENP-F (centromere protein F) (Acc. No. U30872), MAD2 (Acc. No. U65410), BUBR1 (Acc. No. AF053306), MCAK (mitotic centromere-associated kinesin) (Acc. No. U63743), HSET kinesin-like protein (Acc. No. AL021366), CHL1 helicase (Acc. No. U75968), AIK-1 (aurora/IPL1-related kinase) (Acc. No. D84212), AIM-1 (AIK-2; aurora/IPL1-related kinase) (Acc. No. AF004022), PRC1 (protein regulating cytokinesis 1) (Acc. No. AF044588), Citron kinase (Acc. No.

H10809), Lamin B1 (Acc. No. L37747), Lamin B2 (Acc. No. M94362), LAP-2 (lamin-associated protein 2) (Acc. No. U18271), MPP2 (M phase phosphoprotein 2) (Acc. No. U74612), MPP5 (M phase phosphoprotein 5) (Acc. No. X98261), Thymidine kinase 1 (Acc. No. K02581), Thymidylate synthase (Acc. No. X02308), Uridine phosphorylase (Acc. No. X90858), Ribonucleotide reductase M1 (Acc. No. X59543), Ribonucleotide reductase M2 (Acc. No. X59618), CDC47 homolog (MCM7) (Acc. No. D55716), CDC21 homolog (MCM4) (Acc. No. X74794), CDC45 homolog (Porc-PI) (Acc. No. AJ223728), HsORC1 (origin recognition complex 1) (Acc. No. U40152), DNA polymerase  $\alpha$  (Acc. No. X06745), Replication factor C (37-kD subunit) (Acc. No. M87339), B-MYB (Acc. No. X13293), HPV16 E1 protein binding protein (Acc. No. U96131), Topoisomerase II $\alpha$  (Acc. No. J04088), Chromatin assembly factor-I (p60 subunit) (Acc. No. U20980), High-mobility group chromosomal protein 2 (Acc. No. X62534), High-mobility group chromosomal protein 1 (Acc. No. D63874), Histone H2A.F/Z variant (Acc. No. AA203494), XRCC9 (Acc. No. U70310), RAD54 homolog (Acc. No. X97795), HEX1 5'-3' exonuclease (RAD2 homolog) (Acc. No. AF042282), ATP-dependent DNA ligase I (Acc. No. M36067), RAD21 homolog (Acc. No. D38551), Putative transcription factor CA150 (Acc. No. AF017789), Transcriptional coactivator ALY (Acc. No. AF047002), WHSC1/MMSET (SET domain protein) (Acc. No. AA401245), NN8-4AG (SET domain protein) (Acc. No. U50383), EZH2 (enhancer of zeste homolog 2) (Acc. No. U61145), PTB-associated splicing factor (Acc. No. X70944), AU-rich element RNA-binding protein AUF1 (Acc. No. U02019), U-snRNP-associated cyclophilin (Acc. No. AF016371), 3-phosphoglycerate dehydrogenase (Acc. No. AF006043), L-type amino acid transporter, subunit LAT1 (Acc. No. M80244), Hyaluronan-mediated motility receptor (Acc. No. U29343), Phorbolins I (PKC-inducible) (Acc. No. U03891), PSD-95 binding family protein (Acc. No. D13633), HTRIP (TNF receptor component) (Acc. No. U77845), NAD-dependent methylenetetrahydrofolate dehydrogenase (Acc. No. X16396), Membrane glycoprotein 4F2 antigen heavy chain (Acc. No. J02939), Mucin-like protein (Acc. No. 079992), MAC30 (differentially expressed in meningiomas) (Acc. No. L19183), P52rIPK (regulator of interferon-induced protein kinase) (Acc. No. AF007393), Putative phosphoserine aminotransferase (Acc. No. AA192483), Glucose 6-phosphate translocase (Acc. No. Y15409), Calcyclin binding

protein (Acc. No. AF057356), Ornithine decarboxylase 1 (Acc. No. X16277), Trophinin assisting protein (tastin) (Acc. No. U04810), Acyl-coenzyme A cholesterol acyltransferase (Acc. No. L21934), Pinin/SDK3 (Acc. No. Y10351), EST (Acc. No. AA975298), EST (Acc. No. AA034414), EST (Acc. No. AA482549), Cyclin A1 (Acc. No. U66838), Cyclin B1 (Acc. No. M25753), CDC25A (Acc. No. NM\_001789), Dihydrofolate reductase (Acc. No. J00140), or ING1 (Acc. No. NM\_005537).

22. The method of claim 17, wherein expression of the gene is detected using an immunological reagent.

23. The method of claim 17, wherein expression of the gene is detected by assaying for an activity of the cellular gene product.

24. The method of claim 17, where expression of the gene is detected by hybridization to a complementary nucleic acid.

25. The method of claim 17, wherein the mammalian cell comprises an inducible p21 gene, and wherein the assay in subpart (a) is performed in the presence of an amount of an agent that induces p21 expression whereby the extent of p21 induction is insufficient for complete inhibition of genes inhibited by p21.